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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,112	01/08/2002	Wipawan Yindeepol	P05122	4475

7590

08/28/2002

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EXAMINER

BAUMEISTER, BRADLEY W

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 08/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/041,112

Applicant(s)
Yindeepol et al.

Examiner
B. William Baumeister

Art Unit
2815



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Aug 5, 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above, claim(s) 2-8, 10-12, 14, 16, 17, 19, 20, 22, and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 9, 13, 15, 18, 21, and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Jan 8, 2002 is/are a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other: _____

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DETAILED ACTION

Election/Restriction

1. Applicant's election with traverse of Species III in Paper No. 3 is acknowledged. The traversal is on the ground(s) that the species are not patentably distinct since they are covered by common generic claims. This is not found persuasive because it is immaterial whether a generic claim can be formulated so as to cover two patentably distinct inventions.

a. The Examiner agrees with Applicant's observation that the restriction possessed clerical errors: Species I and II should have also recited 2-terminal devices. This clerical error does not affect the bases or propriety of the restriction.

b. Applicant alleges that claims 1-5, 7-15, 18, 21 and 24 either read on or are generic to elected Species III. The examiner partially disagrees.

i. Unlike non-elected Species I and II, elected species III does not further include, along with the p-doped and n-doped regions, an additional highly doped region (58/102) in the tub of the same polarity as the tub. As such, all of the claims reciting this feature are directed to the non-elected species depicted by FIG 5 or 6 -- not the elected species depicted by FIG 7. The claims which include this feature are claim 2; claim 10 (lines 22-); claim 14, and those claims depending therefrom.

ii. Each of claim 19 (lines 29, 30) and claim 22 (lines 30, 31) recites that the second poly layer has a portion that is n-doped and a portion that is p-doped. This feature of oppositely doping different portions of the same poly layer is only associated with the non-elected

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species depicted by FIGs 5 and 6, but not of the elected species depicted by FIG 7. As such these claims as well as claims depending therefrom are necessarily not directed towards the elected species.

iii. Accordingly, claims 1, 9, 13, 15, 18, 21 and 24, either generic to or directed towards elected Species III, are under active consideration. Claims 2-8, 10-12, 14, 16, 17, 19, 20, 22 and 23 are withdrawn from consideration as being directed towards non-elected inventions.

The requirement is still deemed proper and is therefore made FINAL.

Specification

2. The disclosure is objected to because of the following informalities:

a. The specification contains a minor clerical error: "If no limited [sic: limit] is placed on current I..." (Page 2, line 18)

Appropriate correction to this and any other minor clerical errors is required.

Drawings

3. Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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4. FIG 3 includes the designation "(a) Top view." This is inaccurate, as FIG 2 is the top view and FIG 3 is a side view of FIG 2.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

- a. FIG 3 does include numeral 24.
- b. FIG 7 does not include numeral 254 for the bounding oxide (specification, page 8, line 16)
- c. Neither of FIGs 5 and 6 include a label for the substrate oxide.

6. The drawings are objected to because the shading and cross-hatching employed makes various written portions of FIGs 5-7 virtually illegible. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

7. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The above objections to the drawings will not be held in abeyance.

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Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 13 recites that a first region is in a tub (i.e., a diffused region). Claim 18 depends from claim 13 and recites that the first and second regions are formed by two different poly layers in a double poly process (i.e., poly layers overlying the substrate tub). Thus, it is unclear whether the first region is intended to refer to a doped region within the tub or a poly layer disposed on the tub, and one of ordinary skill in the art would not be reasonably apprised of the claim's intended scope.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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11. Claims 1, 9, 13, 15, 18 (insofar as definite), 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ibi et al. '766 in view of Cervin-Lawry et al. '722.

a. Ibi teaches conventional zener-zap diodes (see e.g., FIGs 1 and 2) wherein spaced-apart p and n regions 13/19 are formed in a p type well 12. Metal lines 15 are formed over the n and p regions so that a reverse breakdown voltage can be applied therebetween for adjusting the circuit resistance. Ibi does not disclose that silicided poly lines may be employed for the lines 15.

b. Cervin teaches that zener-zap antifuses that employ silicided 136/138 poly lines 118/120 that connect to respective p and n regions of a semiconductor substrate so that a reverse-bias can be employed thereacross to cause a silicide filament to extend fully between the poly lines to create a short or bridge. Cobalt may be employed as the refractory metal silicide (col. 4, line 52). Conductivity types may be reversed (col. 7, line 31-). The silicided lines may be employed in single or double poly processes (col. 7, line 18). It would have been obvious to one of ordinary skill in the art at the time of the invention to have employed the silicided poly lines as taught by Cervin in the Ibi zap diode for the purpose of providing an anti fuse structure requiring a relatively lower programming voltage than afforded by metal interconnects as taught by Cervin (see e.g., BACKGROUND).

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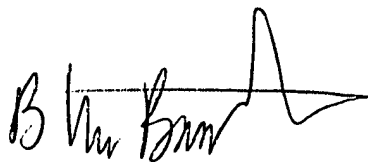
Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Yang et al. '878.
- b. Ellsworth et al. '409

INFORMATION ON HOW TO CONTACT THE USPTO

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner, **B. William Baumeister**, at **(703) 306-9165**. The examiner can normally be reached Monday through Friday, 8:30 a.m. to 5:00 p.m. If the Examiner is not available, the Examiner's supervisor, Mr. Eddie Lee, can be reached at (703) 308-1690. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

 8/23/02

B. William Baumeister

Patent Examiner, Art Unit 2815

August 23, 2002